

HST-318: History of Engineering*

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Office Hours: By Appointment
Office Hours: Meetings Available Face to Face & Virtually

Course Description:

The history of engineering from the earliest record to modern times, examining the social, cultural, and economic effects on society.

Course Overview:

The course will challenge students to consider how engineering and technological decisions have been integral to the courses of human societies throughout history, how engineering as a profession has developed and professionalized, and consider how historical knowledge can directly promote more carefully considered engineering choices in the present. In short, this course is both the history of engineers in knowing the profession's origins and a history for engineers in providing historical foundations to unpin future choices about technology.

It will achieve these aims through a mixture of lecture, course reading, and student research and writing. This course is designated as fulfilling the "L" or Literacy and Critical Inquiry requirements at ASU. Therefore, substantive research, analysis, and writing is required to successfully complete this course. Writing assignments are an integral part of this class and will need to be taken seriously by all students who enroll. Although undoubtedly focus on the concerns of engineers, this course is designed to be approachable and relevant to a wide-range of students from all disciplines.

Student Learning Outcomes:

By the end of the course, students will be able to:

- Describe the History of Engineering from pre-history to the present
- Analyze the effects of engineering and technical knowledge of human societies
- Understand how engineer disasters occur and might be prevented
- Demonstrate research skills with both primary and secondary sources
- Write and speak clearly on topics of student research

Course Assessment and Grading:

Assignment Weighting:

Canvas Module Completion & Participation	45%
Civilization Engineering Analysis	25%
Historical Artifact Project	30%

Grading Scale:

A+	97%+
A	<97-94%
A-	<94-90%

* Enrolling in this class means that you have read, understood, and accepted the policies described in this document. In the event of a disagreement in interpreting a course policy, the instructor's interpretation is paramount and binding. You have the right to withdraw if you do not accept these policies.

***** This is a dynamic syllabus and subject to change *****

B+	< 90-87%
B	<87-84%
B-	<84-80%
C+	<80-77
C	<77-70%
D	<70-60%
E	<60-0%

Canvas Module Completion & Participation:

Students will need to complete all readings, discussion postings, quizzes and assignments posted under topics in each modules on Canvas. Types of assignments will vary based by topics covered and readings. For discussion postings, students should expect to answer the question(s) and post a substantive comment on at least one other student's response (especially when directed). It is the student's responsibility to check Canvas regularly for modules and updates. Discussions cannot be reopened after closing. Quizzes will test comprehension of the module materials at regular intervals. All quizzes and assignments must be completed prior to the due date on Canvas.

Civilization Engineering Analysis:

Students will write a six-page history essay analyzing a pre-modern civilization from 4000BCE to 1500CE from an engineering perspective. Students are required to consider the initial conditions of the civilization, the challenges the civilization faced, and technologies and/or engineering techniques used by these technologies to solve problems. Students carefully evaluate the civilizations in terms of their historical context and not artificially evaluate them by modern standards. Students may comment separately on counter-factual solutions not considered at the time. Further paper guidelines to be provided on separate handout.

Historical Artifact Paper:

Throughout the semester, students will work on a historical artifact paper project of a six-page length. Students will select and gain approval from the instructor to research an artifact related to the History of Engineering from 1500 to the Present. This project will involve multiple steps including an artifact approval form, a detailed bibliography, an outline, and a final paper. All steps will be counted towards Module Completion and Participation with only the final paper counted towards this grade category. Further paper guidelines to be provided on separate handout.

Absences, Make-Ups, & Late Work:

It is the student's sole responsibility to provide valid excuses for missed assignments. Medical notes, university-sponsored activities, or other official excuses will be accepted at the instructor's discretion. **All excuses must be submitted via ASU official email in within one week of the event/illness..** Students must email their excuse as a legible pdf or jpeg file, but it should not assumed as counted/received until a student receives an email acknowledgment. It is the student's responsibility to follow up with getting absences excused.

Any missed assignment that can be made up must be done so within one week of the excuse submission. Make-ups may take a different form and/or include different questions than the one originally completed by the rest of the class. **In general, I will accept a wider range of excuses if you come speak to me well in advance of the schedule conflict.**

Late work is not accepted for this class unless related to an excusable absence of significant duration. All late work will be graded as a zero in the gradebook. If during the course of the semester students have a conflict that could disrupt a submission, the student should email the professor as soon as possible to see if an accommodation is appropriate.

Students who participate in line-of-duty activities shall be provided make-up assignments, examinations, or other graded coursework missed because of required work performed in the line-of-duty, without penalty. See university policy: ACD304-11; SSM 201–18: Accommodating Active Duty Military <https://www.asu.edu/aad/manuals/ssm/ssm201-18.html> for details. Students should discuss individual concerns with their instructor.

Academic Honesty:

Academic honesty violations are very serious and will be dealt with in accordance with the Academic Honesty Code. Specifically, violations (cheating) of academic honesty will be reported to the Academic Honesty Committee. These violations include, but are not limited to, the following: copying from others' exams, otherwise giving or receiving aid during an exam or quiz, obtaining copies of exams, using such copies in the exam, using electronic or other aids during an exam, taking an exam for another student, plagiarism of written work, or any other means of deception. For further information, please read the Student Academic Integrity policy at <https://provost.asu.edu/academic-integrity>.

Assigned Readings:

Students must acquire required books for the course listed below. Students should complete all readings by date assigned on the syllabus or date announced by the instructor. Besides the two books, the instructor will occasionally assign articles, excerpts, or other documents to read. These will be posted and announced prior to class.

Daniel Headrick *Technology: A World History* ISBN (978-0195338218)

Loren Graham *The Ghost of the Executed Engineer* ISBN (978-0674354371)

Other readings is assigned such as articles, excerpts from books, or primary source documents. These readings will be accessible through Canvas or a Library Database. Pay attention to all class announcements about readings.

Weekly Module Schedule:

- **Students must complete all readings, assignments, discussions, and/or quizzes under each topic in Canvas.**
- **This topic outline outlines the overall schedule, but will vary slightly on Canvas.**
- **All due-dates on Canvas are overriding of any date in the syllabus.**
- **See syllabus for full course outline.**

Communication:

As per university regulations, asu.edu domain email is the official student email system for the University. To get in touch with individual students or the whole class outside of class hours, I will use this medium of communication. **It is your responsibility to check your school email on a regular basis to make sure that you receive class information I send via email.** Because of the threats of viruses, however, I will not open messages you send me through other accounts. **Do not**

use Canvas messenger (or any other non-email messenger) to contact me. In addition, it may take up to forty-eight hours to receive a reply under some circumstances. I may also ask a student to see me during office hours if his/her question is too complicated to be addressed via email. For basic course information, please check the syllabus first for this information rather than directly emailing me. For help with your email go to: MyASU > Service > Live Chat OR New Ticket.

Finally, I do not discuss students' grades in email messages or over the telephone due to laws concerning confidentiality of students' records. **I also cannot discuss grades with parents and guardians (or other relatives/friends) as per the guidelines of the Family Education Rights and Privacy Act (FERPA).** If parents/guardians contact me, I will direct them to the pertinent passages of the ASU's FERPA policies.

Canvas:

To help you succeed in this class, I will post most course-related materials on Canvas. These materials include the syllabus, slides, and assignment scores. Additionally, you must take both exams through Canvas. If you have any issues accessing Canvas please contact ASU LMS or come see me at your earliest possible convenience.

Student Responsibility:

Finally, a word about the division of labor in our "joint venture": I will do the best I can to teach you, but you are expected to take your responsibility seriously. I will try to explain the material clearly. I will be available to help you when you need it. On the other hand, your responsibility includes, among other things, arriving on time, focusing on understanding what I am discussing while taking well-organized notes, asking questions if you fail to understand a point in my lecture, finishing reading assignments on time, and studying efficiently and effectively. I assume you understand what your responsibilities are and will take them seriously.

Statement on Inclusion

Arizona State University is deeply committed to positioning itself as one of the great new universities by seeking to build excellence, enhance access and have an impact on our community, state, nation and the world. To do that requires our faculty and staff to reflect the intellectual, ethnic and cultural diversity of our nation and world so that our students learn from the broadest perspectives, and we engage in the advancement of knowledge with the most inclusive understanding possible of the issues we are addressing through our scholarly activities. We recognize that race and gender historically have been markers of diversity in institutions of higher education. However, at ASU, we believe that diversity includes additional categories such as socioeconomic background, religion, sexual orientation, gender identity, age, disability, veteran status, nationality and intellectual perspective.

Challenging Content & Trigger Warnings:

History courses by their very nature deal with serious issues of the human past that may disturb, disquiet, or offend some students. It is not the intention of the class generally to disturb or offend. However, remembering and discussing the past (even the difficult parts) is the only effective way to study history. In line with university policies on this subject, I will attempt to provide warnings when introducing this kind of material; yet if I forget to do so, or if something else (in my materials or posts from fellow students) seems troubling or offensive, please by email or speak to me directly.

University Policy on Establishing a Safe Classroom Environment:

Learning takes place best when a safe environment is established in the classroom. In accordance with [SSM 104-02 of the Student Services Manual](#), students enrolled in this course have a responsibility to support an environment that nurtures individual and group differences and encourages engaged, honest discussions. The success of the course rests on your ability to create a safe environment where everyone feels comfortable to share and explore ideas. We must also be willing to take risks and ask critical questions. Doing so will effectively contribute to our own and others intellectual and personal growth and development. We welcome disagreements in the spirit of critical academic exchange, but please remember to be respectful of others' viewpoints, whether you agree with them or not.

Prohibition of Commercial Notetaking Services

In accordance with [ACD 304-06 Commercial Note Taking Services](#), written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the note taker's name as well as the instructor's name, the course number, and the date.

Students with Disabilities

If you need academic accommodations or special consideration of any kind to get the most out of this class, please let me know at the beginning of the course. If you have a disability and need a reasonable accommodation for equal access to education at ASU, please call Student Accessibility and Inclusive Learning Services for Students.

The site can be found here: <https://eoss.asu.edu/accessibility>

Mental Health

As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These emotional health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. ASU Counseling Services provides counseling and crisis services for students who are experiencing a mental health concern. Any student may call or walk-in to any ASU counseling center for a same day or future appointment to discuss any personal concern. Here is the Web site: <https://eoss.asu.edu/counseling>. After office hours and 24/7 ASU's dedicated crisis line is available for crisis consultation by calling 480-921-1006.

Student Code of Conduct

Students are required to adhere to the behavior standards listed in the Arizona Board of Regents Policy Manual Chapter V –Campus and Student Affairs: Code of Conduct located online at <http://students.asu.edu/srr/code> and the ACD 125: Computer, Internet, and Electronic Communications available at <http://asu.edu/aad/manuals/acd/acd125.html>.

Students are entitled to receive instruction free from interference by other members of the class. An instructor may withdraw a student from a course when the student's behavior disrupts the educational process under USI 201-10 <http://www.asu.edu/aad/manuals/ssm/ssm201-10.html>. An instructor may withdraw a student from a course with a mark of "W" or "E" when the student's behavior disrupts the educational process. Disruptive classroom behavior for this purpose is defined by the instructor.

Harassment Prohibited

ASU policy prohibits harassment on the basis of race, sex, gender identity, age, religion, national origin, disability, sexual orientation, Vietnam era veteran status, and other protected veteran status. Violations of this policy may result in disciplinary action, including termination of employees or expulsion of students. Contact the professor if you are concerned about online harassment of any kind, and he/she will put you in contact with the Dean of Students office.

Title IX

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

“As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish discuss any concerns confidentially and privately.

Campus Resources

As an ASU student you have access to many resources on campus. This includes tutoring, academic success coaching, counseling services, financial aid, disability resources, career and internship help and many opportunities to get involved in student clubs and organizations.

- Tutoring: <https://students.asu.edu/academic-success>
- Counseling Services: <http://students.asu.edu/counseling>
- Financial Aid: <http://students.asu.edu/financialaid>
- Disability Resource Center: <http://www.asu.edu/studentaffairs/ed/drc/>
- Major/Career Exploration: <http://uc.asu.edu/majorexploration/assessment>
- Career Services: <http://students.asu.edu/career>
- Student Organizations: <http://www.asu.edu/studentaffairs/mu/clubs/>
- ASU Writing Centers: <https://tutoring.asu.edu/writing-centers>
- ASU Police Department: <https://cfo.asu.edu/police>
- International Student Resources: <https://students.asu.edu/international/support/academic>

Syllabus Disclaimer

Every effort will be made to avoid changing the course schedule, but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or in the Announcements section on Canvas.